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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/739,351	12/19/2003	Toshiki Takahashi	246770US-2 CIP	1084

22850 7590 12/12/2006

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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT PAPER NUMBER

1763

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/739,351	Applicant(s) TAKAHASHI ET AL.	
	Examiner Jeffrie R. Lund	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/21/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. The Examiner has reviewed the claim for priority and determined that the embodiment of the present invention was added in the present application. Therefore, the case will be examined based on the filing date of December 19, 2003 with a foreign priority date of December 19, 2002.

Terminal Disclaimer

2. The terminal disclaimer filed on September 21, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of D494,552 S has been reviewed and is accepted. The terminal disclaimer has been recorded.

Drawings

3. The drawings were received on September 21, 2006. These drawings are approved by the Examiner.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 33 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 33 and 40 contain the terms "in a plurality" and "the peripheral direction". It is not clear what item/object is being described by the term "in a plurality". It is not clear what "the peripheral direction" is.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 29, 30, and 35-37 rejected under 35 U.S.C. 102(b) as being anticipated by Takagi et al, US Patent 6,402,847 B1.

Takagi et al teaches a plasma etching apparatus that includes: a plasma processing chamber 123; a susceptor 125 disposed in the processing chamber and on which a substrate W is mounted; an exhaust mechanism 131; and an exhaust ring 180. The exhaust ring has three types of exhaust holes 181, and each type of exhaust hole includes a plurality of exhaust holes that: are formed in an annular shape to surround the susceptor, are different in the opening area; and are arranged so that the opening of the exhaust holes disposed at the outer side of the exhaust ring is larger than the opening area of the exhaust holes disposed at the inner side of the exhaust ring so that the opening area is gradually increased from the inner side to the outer side. (Figures 11, 21 and 22)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 31 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al, US Patent 6,402,847 B1, in view of Komiya et al, WO 01/48790.

Takagi et al was discussed above.

Takagi et al differs from the present invention in that Takagi et al does not teach that the thickness of the exhaust ring vary from the inner periphery to the outer periphery.

Komiya et al teaches varying the thickness of the exhaust ring 29 to control the flow of the exhaust gases through the exhaust ring. (Figures 11 and 12; and page 49 line 23-page 56 line 1, specifically, page 49 lines 26-29)

The motivation for varying the thickness of the exhaust ring of Takagi et al is to optimize the flow through the different area exhaust holes by increasing the thickness of the exhaust ring as taught by Komiya et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the thickness of the exhaust ring of Takagi et al as taught by Komiya et al, and to optimize the size of the holes.

10. Claims 32, 33, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al, US Patent 6,402,847 B1, in view of Ishii, JP 2001-093699, and Loewenhardt et al, US Patent 6,030,486.

Takagi et al was discussed above.

Takagi et al differ from the present invention in that Takagi et al does not teach a plurality of magnets arranged around the periphery of the exhaust ring.

Ishii teaches using a plurality of magnets around the periphery of the exhaust

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ring to prevent plasma leaking (abstract and figures).

Loewenhardt et al teaches the use of magnets 60, 62 with an exhaust ring 96 to prevent the plasma from leaking through the exhaust ring (figures 6 and 7).

The motivation for adding magnets to the exhaust ring of Takagi et al is to prevent plasma from leaking through the exhaust ring as taught by Ishii and Loewenhardt et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a plurality of magnets to the apparatus of Takagi et al as taught by Ishii and Loewenhardt et al.

11. Claims 34 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al, US Patent 6,402,847 B1.

Takagi et al was discussed above.

Takagi et al differs from the present invention in that Takagi et al does not teach circular holes or the size of the openings.

The motivation for making the holes of Takagi et al circular is to optimize the shape of the holes. Furthermore, it has been held that a change in shape is a matter of choice which a person of ordinary skill in the art would have found obvious. (See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) MPEP 2144.04.IV.B)

The motivation for selecting a specific size of the holes is to optimize the flow of gas through the exhaust ring. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art

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and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

(Also see MPEP 2144.04 (d))

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the slots of Takagi et al circular, and to optimize the size of the holes.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

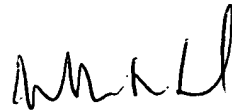
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'JRL', is positioned above the printed name.

Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
12/8/06